

REMARKS

Favorable reconsideration of this application as presently amended is respectfully requested.

Claims 1-6 and 20-26 are presently active in this case, Claims 1 and 20 having been amended by way of the present Amendment.

Claims 1-6 and 20-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Loubinoux et al. (U.S. Patent No. 6,294,036) in view of Angell, Jr. et al. (U.S. Patent No. 5,037,284) and Kuts (U.S. Patent No. 2,954,815). For the reasons discussed below, the Applicant traverses the obviousness rejection.

The Applicant submits that a *prima facie* case of obviousness cannot be established in the present case based upon the presently cited reference, because the references do not teach or suggest all of the claim limitations. (See MPEP 2143.) For example, the cited references do not teach or suggest a process for manufacturing a composite tape characterized in that the sheet is made to pass through a rotating impregnation device including heated rollers, as recited in Claim 1. Furthermore, the cited references do not teach or suggest a process for manufacturing a composite tape comprising the step of passing the sheet through a rotating impregnation device including heated rollers, as recited in Claim 20. Accordingly, the Applicants request the withdrawal of the obviousness rejection.

The Official Action notes that the Loubinoux et al. reference does not disclose a rotating impregnation device that maintains the temperature of the sheet at a temperature at which the thermoplastic is malleable and distributes the thermoplastic uniformly and impregnates the fibers. The Official Action cites the Angell, Jr. et al. reference for the

teaching of a rotating impregnation device. The Angell, Jr. et al. reference describes an impregnation section (20) that includes two coating rollers (21) and (22). A rolling bank of resin (30) is maintained in each rolling die area by means of a resin supply system. The resin supply system is described as having supply lines and pump means supplied with external heating means to maintain the resin in a molten state. However, the Angell, Jr. et al. reference does not disclose or suggest the coating rollers (21) and (22) being heated. Accordingly, the Angell, Jr. et al. reference does not disclose a rotating impregnation device including heated rollers, as expressly recited in Claims 1 and 20 of the present application.

Furthermore, the Applicants submit that the Kuts reference does not supplement the deficiencies in the teachings of the Loubinoux et al. and Angell, Jr. et al. reference discussed above.

Thus, the Applicants respectfully request the withdrawal of the obviousness rejection of Claims 1 and 20.

Claims 2-6 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

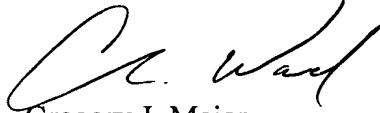
Claims 21-26 are considered allowable for the reasons advanced for Claim 20 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 20.

Consequently, in view of the above discussion, it is respectfully submitted that the

present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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Serial No.: 09/668,291

Amendment Filed on: 7-7-03

IN THE CLAIMS

1. (Four Times Amended) Process for manufacturing a composite tape based on reinforcing fibres and on a thermoplastic organic material, consisting in bringing together and in consolidating a multiplicity of continuous yarns, characterized in that:

yarns based on thermoplastic and reinforcing fibres are entrained and brought together in a parallel manner in the form of a sheet;

said sheet is made to enter a zone in which the sheet is heated to a temperature reaching at least the melting point of the thermoplastic without reaching the softening temperature of the reinforcing fibres;

the sheet is made to pass through a rotating impregnation device including heated rollers, while maintaining the sheet at a temperature at which the thermoplastic is malleable, in order to distribute the molten thermoplastic uniformly and guarantee that the reinforcing fibres are completely impregnated by the latter;

the sheet is introduced into a shaping and centring device including a roller in a shape of a hyperboloid, while maintaining the sheet at a temperature at which the thermoplastic is malleable, so as to obtain a tape formed by bringing the yarns together so as to be touching, thereby creating transverse continuity;

the tape is cooled in order to consolidate the yarns by freezing the thermoplastic and dimensional characteristics of the tape and appearance of the tape are set in order to deliver

said composite tape.

20. (Twice Amended) A process for manufacturing a composite tape, said process comprising the steps of:

entraining and bringing together a multiplicity of yarns based on thermoplastic organic material and reinforcing fibres in a parallel manner to form a sheet;

heating the sheet by entering the sheet into a heating zone in which the sheet is heated to a temperature of at least a melting point temperature of the thermoplastic and less than a softening temperature of the reinforcing fibres;

passing the sheet through a rotating impregnation device including heated rollers, while maintaining the sheet at a temperature at which the thermoplastic is malleable, so as to ensure that molten thermoplastic is distributed uniformly and guarantee that the reinforcing fibres are completely impregnated by the molten thermoplastic;

bringing the multiplicity of yarns together so as to be touching using a shaping and centering device including a roller in a shape of a hyperboloid, while maintaining the sheet at a temperature at which the thermoplastic is malleable, so as to obtain a tape having transverse continuity; and

cooling the tape in order to consolidate the multiplicity of yarns by freezing the thermoplastic.